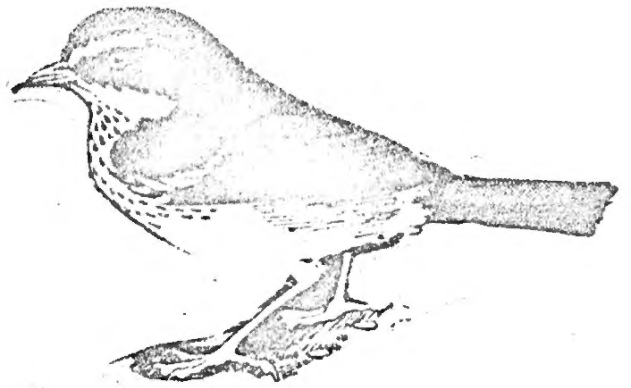


CASTLEMAINE NATURALIST



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The Month of May at Campbells Creek

By Terry Collins

The Honeyeaters are still draining the Bird Bottle every two days; mainly Yellow-faced and Yellow-tufted. A plague of Silver-eyes steadily eating all the Cotoneaster berries competing with about 8-10 Crimson and Eastern Rosellas. The Grey Currawongs have blotted their copybook once again by cleaning off the green tomatoes on the bushes. Still they are lovely looking villains that we forgive them. A flock of about 25 White-winged Choughs have come along the back feeding regularly. Always they have their sentries posted around. A few years ago when they seemed to be hungry during the winter I befriended them by feeding them and they would come down when I called. However they became a real nuisance by tearing the garden to pieces that I stopped. Now they politely keep their distance.

Two Restless Flycatchers pay a visit occasionally to a small above-ground swimming pool to gather the drowned insects floating on the surface.

Our plot of natural ground shows signs of rejuvenation after the little rain. The Tetratheca, Hovea, Rice flowers and others look like recovering to their usual splendour. How they survive on such poor country is amazing. Finally it should not be long before a stray Wattle will bloom to brighten our dull days.

P.S. A friend from Newstead has just reported to me that several years ago he had the rare Cicada bird around his house for a while and also last November he spotted an "Albino" Magpie, halfway between the Maldon turnoff and the Golf club. It was among a small flock of others and was so remarkable that he hailed a passing car to verify that he was not seeing things.

SAND

These thoughts on sand were inspired by a recent visit to Wilson's Promontory, where different types of sand are found on two of the best-known beaches, Norman Beach and Squeaky Beach, separated by a ridge of granite, Pillar Point. Sand, one of the commonest materials around us, is a different thing to different people. The child views sand as material for sliding down, mixing with water, or digging into. The housewife regards it as a nuisance when carried indoors on feet or paws. A householder on a coastal plain may dig a well in sand to locate water to irrigate his lawns and garden. A Geologist sees these tiny grains of rock as clues to the history and composition of the earth.

What is sand? Geologists use the term for a certain size of rock fragment. Rock particles measuring from one-sixteenth of a millimetre to two millimetres in diameter are known as sand. Fragments larger than two millimetres are classified as pebbles, and those smaller than one-sixteenth of a millimetre are called silt or clay.

Sand may be picked up by several means and later deposited in all kinds of places. As time passes, chemicals or weathering (or both) may break down the rock into minerals such as quartz or felspar. In time, the sand grains usually reach the ocean where they are deposited as beach sand. The grains may be mixed with large amounts of shell fragments which have resulted from the weathering of shells, material from algae, and other organic remains. Waves and currents deposit these sands along our beaches.

Sands differ in colour. They may be almost any colour - and some spots in the world are famous for their many-coloured sands - but most are white, buff, grey, or (if they contain much iron) red, yellow or dark brown. The colour and composition of sand can provide valuable clues about its origin. The sand of Norman Beach is a buff colour and contrasts with the sand of Squeaky Beach which is white and quite dazzling in the sun.

Geologists are also interested in the roundness and shape of single sand grains. "Roundness" refers to the edges and corners of fragments which can be observed through a hand lens. The roundness of a sand grain reveals something of its history. For example, rock particles which have been carried as sediments by fast-flowing streams will normally be very abraded, i.e. scraped or worn down. These stream beds may slope quite steeply, and particles which started off with sharp edges may become rounded fairly quickly. As these fragments are turned about they strike one another as well as the stream bed, and the sharp corners are rounded by crushing, grinding, chipping and other kinds of abrasion. The further the grains travel, the rounder they become.

Even beach sands will continue to be rounded and polished as they are washed back and forth by the waves.

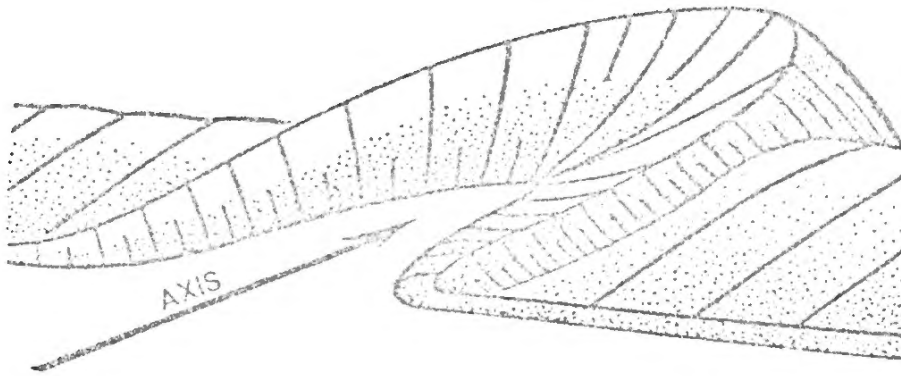
Sand is carried mostly by water or wind. Sand carried by streams is swept along the bottom only when there are fast currents, so most of this kind of sand movement takes place during time of heavy rainfall in the Winter in the south of the continent and in the Summer in the north.

Wind can carry huge amounts of sand under certain conditions, but even the largest particle that can be moved by wind is much smaller than those which water can carry. Also, particles will remain suspended in water longer than those of similar size can remain in the air. Therefore sand is deposited more rapidly by air than by water, Wind-blown sand is normally fine-grained, rounded and very well sorted as to size.

In N.W. Victoria sand dunes are common where sand has been deposited by wind. These mounds of sand are built up when wind-borne sand grains strike an obstruction, usually plants of some kind. These plants serve as a natural wind-break cutting the wind's velocity, When the wind has been slowed down in this way, it cannot continue to carry its full load of sand, so it deposits some of it, usually on the leeward side of the plants. Sand dunes have also been formed across the Yanakie isthmus connecting the Granite mass of Wilsons Prom. to the mainland. This sand probably began to accumulate while the Granite section of the Prom was still an island, and eventually resulted in the island being converted from an island to the Promontory it is today.

Sand dunes are of many different types, and each type has its own meaning for geologists. In desert areas, with little plant cover and with a constant wind direction, dunes form with a crescent shape, their "horns" pointing down-wind, This type is called a 'barchan'. A common type of coastal dune is the U-shaped parabolic dune whose horns point up-wind. Longitudinal dunes are long ridges of sand running parallel to the wind; this type occurring both along coasts and in desert areas. They may be seen clearly in the Victorian Mallee. Fore-dunes are the commonest along the coasts of Southern Australia and are the ones most favoured by beach-buggy drivers. They form when strong onshore winds pile up beach sand in ridges along the coast and plant cover is dense enough to prevent the masses of sand from moving inland.

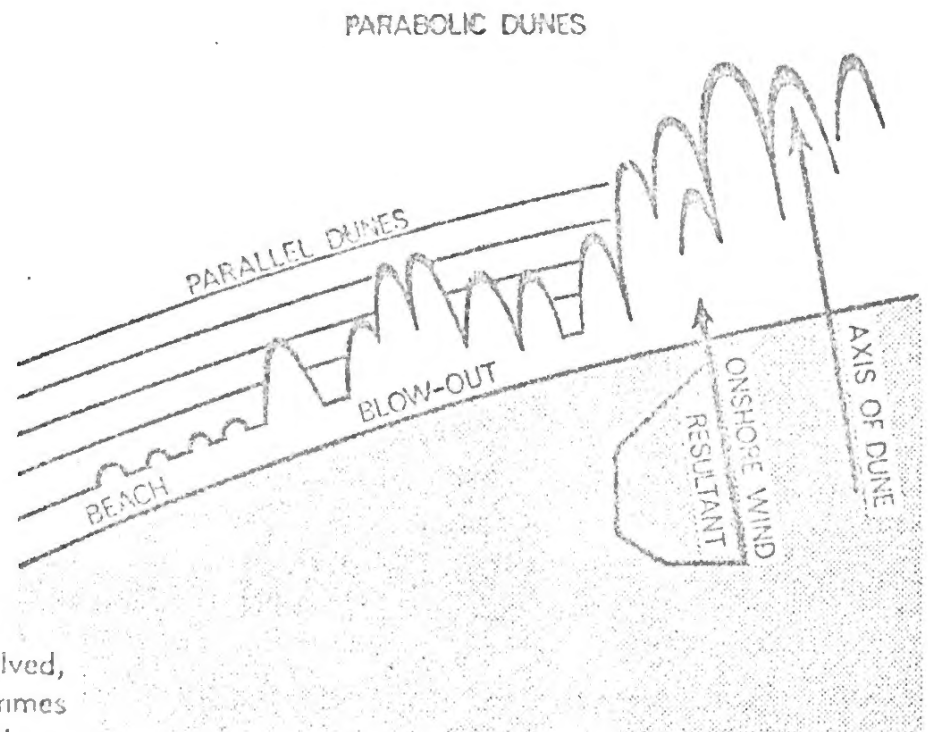
Another type of sand formation is called a ridge. They range from two to five metres from trough to crest and there may be almost 22 ridges to a kilometre. Fifty to ninety percent of the sand forming them may be made up of shell fragments. Ridges are formed when sand is built up on a beach by wave action and survives a storm. Then, during the next spell of calm weather, further deposits of sand build up another ridge in front of the first. This process continues over a very long time. It may be speeded up by a fall in the level of the sea. Such ridges may be seen in the S.W. of the state, from Discovery Bay and extending inland some kilometres.



A parabolic dune blown out by the onshore winds.
The vegetation on the fore-dune has been destroyed,
causing the sand to move.

By studying our ridges, a geologist can tell the sequence of events over the last few thousand years as the coast of the South-West arose from the sea.

Man makes much use of sand, The building industry uses enormous quantities as an ingredient of mortar and concrete and as filling. It is used extensively in the manufacture of glass and ceramics, and in filtration beds for the purification of water. Some deposits of sand contain valuable minerals such as Ilmenite, there are several places where the sand is mined. At Warrnambool, the sand of the dunes is so rich in shell fragments that it is mined and treated to convert it into lime.



The diagram right illustrates the processes involved, from the first stage (when re-vegetation programmes should be carried out) to the advanced stage, where the entire fore-dune system has been destroyed.

And why is the sand of Squeaky beach noisy ? The grains of sand there have been formed from the quartz grains in the granite of the Prom. Each grain is so round and all the grains are so uniform in size that they rub together when walked upon, especially if dry. Our forebears, more poetic than us, called them "The Singing Sands". In any case they can certainly talk, especially to Geologists, who have learned much about the history of parts of the earth by studying these minute particles of rock.

Ref: Nature Walkabout Vol 13 #1
Hills, E.S. Physiography of Victoria

THE BOX JELLYFISH (Chironex fleckeri)

by Terry Collins

Should any Field Naturalist visit Northern Australia and poke around the beaches, these are one of the dangers to be wary of. They inhabit the waters of the northern coastline between September and April each year. This is the "wet" season and the warm currents from equatorial areas carry them into Australian waters. To date, around 57 confirmed fatalities have occurred throughout the Indo-Pacific region and 42 of them in Northern Australia. The first documented fatality occurred in Townsville in 1854.

The box jellyfish is a unique form of life in a number of ways. It is the only form of stinging jellyfish known to be lethal to man and only constitutes a danger during a particular time of year. The near transparent physical form of the animal makes it difficult to see in its natural element. The "head" section or box is completely harmless and measures an average 12-16 cm in diameter. Attached to this are four pedaliums (arms) from which tentacles numbering 10-15 per pedaliu trail behind for up to 3-5 metres. It is these tentacles which spell danger to the unwary. Each one contains a multitude of nematocysts or stinging cells; microscopic capsules containing venom and a coiled thread which is hollow. Upon contact the capsules discharge the thread with the venom into the victim. With the intense pain which is suffered from the introduction of the venom, the victim's movements become uncontrollable. The hands invariably claw at the tentacles but the disturbance merely releases greater amounts of nematocysts. First aid in this event is to wash down the sting area with liberal amounts of commercial vinegar immediately. This retards the action of the nematocysts and stops any further release of venom. This could be life saving in the early stages of envenomation. In past years methylated spirit was applied but recent tests show that this application causes massive discharge of the nematocysts. Tourniquets are no longer recommended, and no attempt should be made to rem-

ove the tentacles if they are adhering to the skin. Early first aid is essential till the victim can be given an Antivenene.

A really nasty creature and children are especially vulnerable as they are apt to race into the sea for a paddle or a swim.

Two other dangers of northern waters are the Stonefish and the Conus shell. With the Stonefish take care when wandering on reefs at low tide. A "no=no" is the wearing of sandshoes, thongs, or no shoes at all. Step on the back of a Stonefish which is a master of camouflage and you will be rewarded by one if not thirteen venomous spines penetrating the sole of your foot.

The Conus shell (Conus geographus) is brightly coloured and patterned and the shellfish that lives inside the shell fires a small dart into small fish that swim past. The venom acts and the prey is caught and consumed. In 1935 a young man picked up a geographus cone shell while exploring a reef. As he was holding the shell he was struck in the palm of the hand by a venomous dart. Unfortunately he died several hours later. So, should you be wanting to explore the northern reefs, take care to provide yourself with all the brochures relating to the above and a bottle of vinegar.

SUPERSTITIONS No 2.

More folk lore from the "Old Countries".

SAGE : A plant that grows well for a woman, particularly if she rules her husband and family with a firm hand. It was useful in love charms -- the seeker of a husband should carefully pluck twelve leaves on Midsummer Eve taking one leaf with each strike of the clock. If the sage picker looked behind her she would see the vision of her future husband. If you eat sage regularly every May you should live to a very great age.

WREN : A precious little bird much loved since very ancient times. It is still believed by some that a cow will give blood instead of milk if a wren is killed. Anyone destroying or removing its nest will have a broken arm within twelve months of doing so.

COMET WATCH

In the year 1680, the second Astronomer Royal, Edmond Halley, observed a comet, and in 1695 he began a series of calculations of various cometary orbits. In all he calculated the orbits of 24 comets and subsequently noted that those of 1531, 1607 and 1682 were very similar. He concluded that these particular orbits were of the same comet but with slightly different periods, and he correctly ascribed this anomaly to slight perturbations or "wobbles" of the comet's path caused by the large masses of both

Jupiter and Saturn. Halley predicted that the comet would reappear about 1758 and A.C. Clairaut added some 600 days to the prediction; indeed, the comet was observed again on Christmas day 1758, some 16 years after Halley's death.

Astronomers have traced observations of the comet at almost every passage since 240 B.C. The Bayeux tapestry depicts what was later to be known as Halley's Comet in the constellation of Gemini, hovering over the English King Harold in April 1066. The Bayeux Tapestry illustrates the events connected with the Norman invasion of England, commencing with Harold's visit to the Norman Court, and ending with his death at the Battle of Hastings. It is approximately 70 metres long and 50 cm wide and comprises 72 scenes. It was originally found in the Bayeux Public Library and the first historical mention of it was in an inventory of 1369.

In 1910 the apparition was a magnificent sight and the Earth actually passed through the tail of the comet. In spite of some dire predictions, including one that the Earth would disappear, nothing untoward happened. Halley's comet was actually outshone by another -unexpected- comet, known as the Great January Comet of 1910.

Predictions for the apparition of 1985-86 are that the comet will not be as spectacular as 1910. At the perihelion passage (the closest approach to the Sun) which will occur on February 9, 1986, the Earth will be on the opposite side of the Sun to the comet and so it will not be observable from the Earth. There will be two close approaches to the Earth, the first on November 27, 1985 and the second and closest on April 11, 1986.

For Southern Hemisphere observers the best period for observations will be in April 1986, when there will be some nights during which the comet will be visible from dusk to dawn. This will occur when it is southernmost in the sky in the constellation of Centauris. Northern Hemisphere observers will find November 1985 to be the best time.

Comets and the planets of our Solar System probably formed from the same cloud of gas and dust. However, whereas information on the formation of the planets and their satellites has been observed by millions during years of change, the comets are thought to be still in their

primordial state. Comets may have been a major source of organic material in the atmosphere in planets, and a study of their composition could possibly provide clues to the nature of the pre-biological environment of the Earth

(Reprinted from CSIRO Scifile 23, Dec 1984)

CASTLEMAINE F.N.C. AGENDA

Visitors are invited to attend the club's sessions.
Excursions leave promptly at the times shown.

Frid 14 June. MR ALLAN HARTUP will be guest speaker.

Sat 15 June. MELBOURNE ZOO All day trip. Leave Lyttleton
st (opp Uniting Church) at 9.00, leave zoo at 3.30 approx.
Visitors welcomed.

Fri 12 July. DR E. PETERS - POND LIFE

Sat 13 July. ABORIGINAL WELLS. Leader is A. Perry (Creswick
F.N.C.).

Fri 9 Aug. MR H. POLLOCK-BIRTH OF A KOALA. To be confirmed.

Sat 10 Aug. NUGGETTY RANGES. 1.30 from Education Centre.

Aug 30-31, Sept 1st. AXEDALE -W.V.F.N.C.A campout.

Sept 13-15 MELVILLE CAVES Campout arranged by Ballarat
F.N.C.

Fri/Sat/Sun 11-13 October? COLAC - W.V.F.N.C.A. Campout.

Sat 12 Oct. JIM CROW AREA Leader J. Dare

Sun 20 Oct. BENDIGO WHIPSTICK - all day excursion with
Maryborough F.N.C.

Sat 9 Nov. Excursion with Bird Observers Club.

Feb 1986. BENDIGO SETTILING PONDS with Maryborough F.N.C.

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